2016 Level I Tutorials

Income Approach to Value

Income Approach

- The income approach is based on the principal that the value of an investment property reflects the quality and quantity of the income it is expected to generate over its life.

Income Approach

- Estimating the value of an income-producing property is done by capitalization.
- In simple terms, capitalization is the division of a present income by an appropriate rate of return to estimate the value of the income stream.

Income Approach

- The model used to estimate the value today of income expected in the future is known as the IRV formula.

- Value = Income/Rate
- V=I/R

Income Approach

- The income approach is a means of converting future benefits to present value.
- Essential to the approach is the idea that income to be received in the future is less valuable than income received today.

Income Approach

- Let's look at several principles that are related to this idea.

- **Supply and Demand** – supply is the quantity of goods available at a given price schedule; demand the quantity of goods desired at that price schedule.
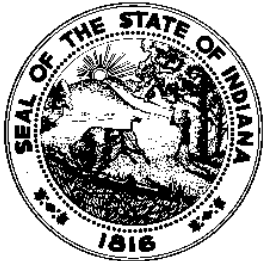
Income Approach

- Supply and demand interact to establish prices in the marketplace.
- In general, markets that are more competitive generate sales prices that reflect true market value.
- Less competitive markets may produce prices that reflect investment value or value in use.

Income Approach

- <u>Anticipation</u> – the idea that present value is determined by future benefits.
- Because a dollar to be received in the future has less value than a dollar held now, the value of future dollars anticipated from the ownership of real estate should be adjusted to present value according to the time they are expected to be received.

Income Approach

- <u>Substitution</u> – A property's maximum value is set by the lowest cost or price at which another property of equivalent utility can be acquired.
- The price of substitutes also determines demand.

Income Approach

- <u>Competition</u> – The attempt by two or more buyers or sellers to buy or sell similar commodities influences the rate of return on invested capital.
- The rate of return, reciprocally, influences both supply and demand in a particular market.

Income Approach

- <u>Capitalization</u> is the conversion of a single income stream or a series of income streams into a lump-sum value.

- A <u>capitalization rate</u> converts net operating income into an estimate of value.

- The capitalization rate is made up of several components – a discount rate, a recapture rate and an effective tax rate.

Income Approach

- The <u>Discount Rate</u> = required rate of return *on* investment.
  - The discount rate is made up of an interest rate and a yield rate and reflects the compensation necessary to attract investors to give up liquidity, defer consumption, and assume the risks of investing. It is the required return on total property investment to meet investment requirements. In short, this is what an investor will expect to receive back from the amount he/she put up for the investment. This will be in the form of periodic income such as rent, dividends etc. and/or possible capital gains at the end of the investment period.
  - Interest rate = required rate of return on borrowed funds.
  - Yield = required rate of return on equity.

Income Approach

- <u>Recapture rate</u> = rate of return of investment
- It is the annual dollar requirement for returning to the investor a sum equal to the property value (improvements only) at the end of a given period of time.
- Provides for the recovery of capital on an annual basis and applies only to that part of the investment that will waste away during the investment period. You can think of this as depreciation.

Income Approach

- <u>Effective tax rate</u> is the property tax rate expressed as a percentage of the market value.
- It is the proportion of tax dollars to market value, and the only way to compare the effect of property taxes across jurisdictions.

Income Approach

- For example, a property with a market value of $1,000,000 and a total property tax of $27,500 has an effective tax rate of 0.027 or 2.7 percent.
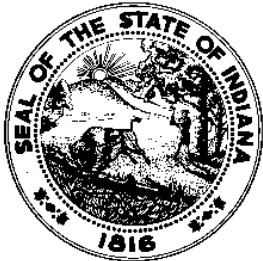 ($27,500 / $1,000,000 = 0.027)

Income Approach

- Let's take a look now at how buyers see the risks and benefits of real estate investment.
- Why do investors choose income-producing real estate from a wide array of investment opportunities? Because they plan to receive a larger sum in the future than the amount invested now.

Income Approach

- Investors also try to choose the highest yield with the lowest risk.

- In determining where to invest dollars, the investor analyzes the opportunities available and asks, "Should I make this investment?"

Income Approach

- To answer that question, the investor asks more questions:
  - How much will it cost?
  - How much will I get back?
  - When will I get it back?
  - What are the risks?
  - What is the return on investments of similar risk?

Income Approach

- Overall objectives that an investor wants:
  - A return <u>of</u> the investment = recapture
  - A return <u>on</u> the investment = discount
    - Periodic Income (dividends, interest, rent)
    - Growth income (capital gain upon the sale of an investment)
    - A combination of both periodic and growth income.

Income Approach

- The income approach looks at factors that influence the behavior of investors
  - Safety/Risk
  - Liquidity
  - Size of the investment
  - Use as collateral
  - Leverage
  - Holding period
  - Amount of management required
  - Potential for appreciation
  - Income tax advantages

Income Approach

- Safety/Risk
  - Risk is relative and no investment is risk free.
  - The more safe an investment is, the less return (discount) an investor expects.
  - Conversely, the more risk involved in an investment, the higher the return (discount) an investor expects.

Income Approach

- <u>Liquidity</u>
  - Refers to the ease of converting the investment into cash.
  - Highly liquid investments convert into cash easily, and, therefore, the investors expect a lower return (discount) than he/she would for an investment that takes longer, or is harder, to convert to cash.

Income Approach

- Size of investment
  - Some investments require a large sum of money to get into; others do not.
  - Usually, the greater the amount of cash required to be invested, the greater the return (discount) expected by the investor.

Income Approach

- <u>Use as collateral</u>
  - Collateral refers to pledging the investment as security for a loan; in the case of real estate investments, this is done through the use of mortgages.
  - This is one way to make the investment more liquid and to minimize the cash required to purchase the investment.
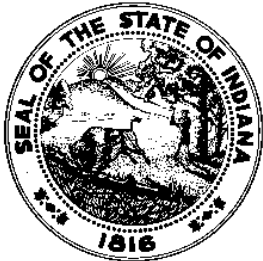
Income Approach

- Leverage
  - Refers to the borrowing of funds to purchase an investment in the hope of earning a greater return on the investment than the cost of borrowing the funds.
  - The lender takes on part of the risk in return for the interest they charge the borrower.

Income Approach

- Holding Period
  - The holding period is the amount of time the investor must keep the investment in order to attain his/her investment objective.
  - Usually, the longer the holding period, the higher the return (discount) the investor expects.

Income Approach

- <u>Amount of management required</u>
  - Investments require time on the part of the investor, or a professional manager they hire, to keep track of the investment.
  - The more time required to manage the investment, the higher the return (discount) expected by the investor.

Income Approach

- Potential for appreciation
  - Some investments have the potential to increase in value (capital gain) over the holding period, others do not.
  - An investor who expects the property to appreciate over time may accept a lower return (discount) during the holding period because they are willing to wait until the end of the holding period and get it in a lump sum (capital gain).

Income Approach

- Income tax advantages
  - Some investments offer income tax advantages, others do not.
  - May be in the form of a lower effective rate of taxation on capital gains, depreciation allowance to offset income, and/or the investor is allowed to subtract interest on a loan taken out to purchase the investment.

Income Approach

- It is important to understand the terminology used in the Income Approach.

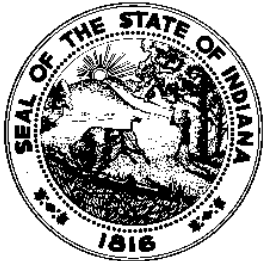- On the following slides are common terms and their definitions.

Income Approach

- **<u>Amortize</u>** – process of repaying a loan by means of a series of scheduled payments; typically the scheduled payments include interest charges and principal repayment.
- **<u>Annuity</u>** – right to receive money in (usually) fixed amounts and at regular intervals for a definite or indefinite period of time.

Income Approach

- **Capital Gain** – profit realized upon sale of a property if the sale price exceeds the cost of acquisition and the cost of any improvements the seller has added.

Income Approach

- **Capitalization** – mathematical process used to convert income into value.
  - Direct Capitalization – a method which uses one year's income.
  - Yield Capitalization – a method which uses a series of future incomes.

Income Approach

- **Cash Flow** – amount of income remaining after subtracting debt service and/or income taxes from net operating income.
  - Before-tax Cash Flow – Amount of income remaining after subtracting debt service from net operating income.
  - After-tax Cash Flow – Amount of income remaining after subtracting income taxes from before-tax cash flow.

Income Approach

- **Contract Rent** – actual amount of rent that a tenant pays a landlord as specified in the lease.
- **Debt Service** – payments of principal and interest on a mortgage.
- **Discounting** – process of estimating the present worth (value) of an anticipated future income stream.

Income Approach

- **Discount Rate** – rate of return on an investment; expressed as a percentage.
- **Effective Gross Income (EGI)** – potential gross rent, less vacancy and collection loss, plus miscellaneous income.
- **Effective Tax Rate** – annual property tax burden expressed as a percent of the property's market value.

Income Approach

- **Equity** – net value of property after liens, mortgages, and other charges are deducted; amount of capital (dollars) the titleholder has invested in a property. At the date of purchase, equity is equal to the cash down payment required.
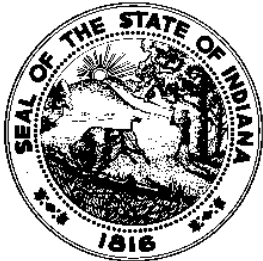- **Equity Yield Rate** – required rate of return on equity capital

Income Approach

- **Expense** – a cost which is chargeable against income (rent)
- **Expense Ratio** – ratio of expenses to effective gross income: expenses divided by effective gross income
- **Factor** – reciprocal of a rate; one (1) divided by a rate
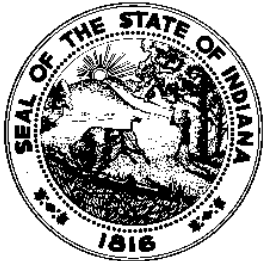
Income Approach

- **<u>Fixed Expenses</u>** – expenses that do not vary with occupancy and have to be paid whether the property is occupied or not (property taxes, mortgage payments, etc.)

Income Approach

- **Gross Income Multiplier (GIM)** – a simple capitalization technique that uses the relationship between a property's effective gross income and its market value. GIM is calculated by dividing a property's market value by its annual effective gross income.

Income Approach

- **Gross Rent Multiplier** – same as GIM except the GRM is calculated by dividing a property's market value by its monthly effective gross income.
- **Gross Lease** – a lease which calls for the landlord to pay all the expenses of operating the property.

Income Approach

- **<u>Ground Rent</u>** – amount of money paid by a tenant to a landlord to use vacant land.
- **<u>Holding Period</u>** – length of time an investor must keep an investment in order to achieve his/her investment objectives.

Income Approach

- **Improper Expenses** – expenses incurred in the ownership of income-producing property that are <u>not used</u> to calculate value in the income approach.
- **Income** – payments to its owner (landlord) that a property is able to produce from charging rent to a tenant.

Income Approach

- **Income Stream** – series of payments received from an investment during the holding period of the investment.
- **Interest (Interest Rate)** – cost of borrowing money; percentage charged to borrow money.
- **Investment Value** – value of an investment property to a particular investor; may not equal market value.
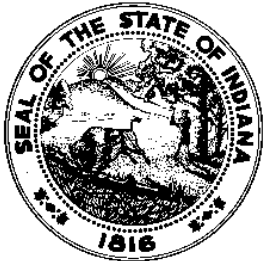
Income Approach

- **<u>IRV</u>** – notation for the basic capitalization formula used in the income approach where: **<u>I</u>**ncome divided by **<u>R</u>**ate equals **<u>V</u>**alue.

The formula for the Income Approach to Value is:
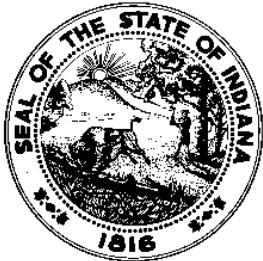
V = I ÷ R

Income Approach

- **Lease** – a written contract by which the landlord (lessor) transfers the rights to occupy and use property to a tenant (lessee) for a specified period of time in return for a specified payment (rent).
  - **Gross Lease** – a lease which calls for the landlord to pay all the expenses of operating the property.
  - **Net Lease** – a lease which calls for the tenant to pay all the expenses of operating the property.

Income Approach

- **<u>Leased Fee Estate</u>** – landlord's (lessor's) interest/rights in a property.
- **<u>Leasehold Estate</u>** – tenant's (lessee's) interest/rights in a property.
- **<u>Lessee (Tenant)</u>** – person receiving a possessory interest in property under the terms of a lease.

Income Approach

- **<u>Lessor (Landlord)</u>** – person who holds title to a property but has granted the use of the property to another (tenant/lessee).
- **<u>Leverage</u>** – process of borrowing funds to purchase an investment in the hope of earning a greater return on the investment than the cost of borrowing the funds.

Income Approach

- **<u>Liquidity</u>** – ease by which an investment can be converted into cash.

- **<u>Loan-to-Value Ratio</u>** – percentage of a property's market value a lender (mortgagee) will loan a borrower (mortgagor).

Income Approach

- **Market Rent** – the rent prevailing in the market on the date of appraisal; the rent a prospective tenant would pay to occupy the property if it were vacant.
- **Mortgage** – contract in which a borrower (mortgagor) pledges title to a property as security for a loan from a lender (mortgagee).

Income Approach

- **<u>Mortgagee</u>** – lender
- **<u>Mortgagor</u>** – borrower
- **<u>Net Income</u>** – rent expected from a property after deduction of allowable expenses.
- **<u>Net Lease</u>** – lease which provides for the tenant (lessee) to pay all the expenses of operating the property.

Income Approach

- **Net Leasable Area (NLA)** – area within a building which is actually occupied by a tenant or tenants; does not include any common areas. (Used to determine PGI)
- **Net Operating Income (NOI)** – annual income remaining after deduction of allowable expenses and reserves for replacements, from effective gross income.

Income Approach

- **Nominal Tax Rate** – actual tax rate shown on a tax bill; expressed as millage, dollars per hundred or dollars per thousand.
- **Occupancy Ratio** – occupied units/space expressed as a percentage of total units/space; reciprocal of the vacancy ratio.

Income Approach

- **Operating Expenses** – costs necessary to maintain the flow of rent for a property.
- **Operating Statement** – written summary of annual income and expenses on a property.
- **Overall Rate (OAR)** – a capitalization rate that includes all requirements of discount, recapture, and effective tax rates that is used in direct capitalization.
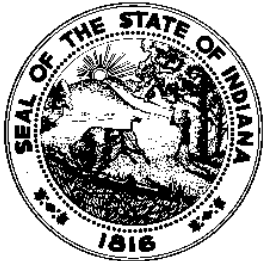
Income Approach

- **Potential Gross Income (PGI)** – total market rent that a property could annually generate if it were 100% occupied.
- **Present Worth** – value of an investment produced by discounting future income.
- **Rate** – a number expressed as a % or its decimal equivalent.

Income Approach

- **Recapture** – act of getting back the dollars put into an investment.
- **Recapture Rate** – rate of return **of** dollars put into an investment; expressed as a percentage.
- **Reciprocal** – result obtained when one (1) is divided by a given number.

Income Approach

- **Rent** – dollars paid by a tenant (lessee) to a landlord (lessor) in return for occupying and using the landlord's property.
  - **Contract Rent** – actual amount of rent that a tenant pays a landlord as specified in the lease.
  - **Market Rent** – the rent prevailing in the market on the day of the appraisal; the rent a prospective tenant would pay to occupy the property if it were vacant.

Income Approach

- **Reserve for Replacements** – an operating expense for replacement of capital items such as roofs or HVAC equipment. These are expenses that do not occur every year but do need periodic replacement. It is assumed a prudent owner will take an amount from rent collections each year, deposit it in a reserve account, and pay for these types of expenses from the reserve account and not out of current year's collections.
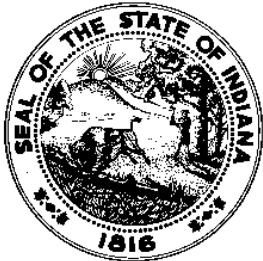
Income Approach

- **Reversion** – right of possession returning to the landlord on the termination of a lease; value of the investment at the end of the holding period.
- **Sale-Leaseback** – a sale and subsequent lease given by the buyer back to the seller as a part of the same transaction.
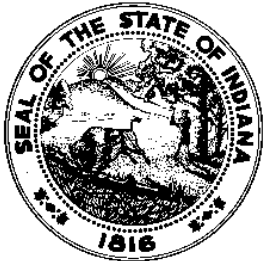
Income Approach

- **Tenant** – a person who occupies/uses a property but does not hold title.
- **Time Value of Money** – the amount of money anticipated as future income is always worth less than an equal amount in hand at the present time.

Income Approach

- **Vacancy and Collection Loss** – a loss from potential gross income (PGI) caused by vacant space and failure to collect rents.
- **Yield Capitalization** – a capitalization method that uses a series of future incomes.

Income Approach

- There are two formulas which are used in the income approach to value:

1. **IRV formula**
   - Used in direct capitalization
   - Uses a rate to convert one year's income into value.

Income Approach

VIF Formula

- Used in yield capitalization.
- Uses a factor to convert all future years' income into value.

- We will look at both formulas; however we will only be using the IRV formula for this class.

Income Approach

IRV Formula

I = Income

R = Rate

V = Value

In appraising income property, we use:

I = annual net operating income (NOI)

R = overall capitalization rate

V = market value

Income Approach

IRV Formula

- I (Income) = R x V

- R (Rate) = I ÷ V

- V (Value) = I ÷ R

Income Approach

VIF Formula

- **V = Value**
- **I = Income**
- **F = Factor**

In appraising income property, we use:

- **V = market value**
- **I = annual effective gross income (EGI)**
- **F = compound interest factor**

Income Approach

VIF Formula

- V (Value) = I x F

- I (Income) = V ÷ F

- F (Factor) = V ÷ I

Income Approach

- All we need to process the income approach to value are two things:
  - **Net operating income (I)**
  - **Capitalization rate (R)**

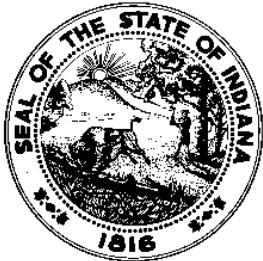- Once we have these two items, we simply plug them into the IRV Formula to get the value of the property. **V = I ÷ R**

Income Approach

- The **Income (I)** we will plug into the IRV formula is net operating income (NOI)
- It is developed by reconstructing an annual operating statement for the subject property.

Income Approach

- It is called a "reconstructed" operating statement because there are certain items the owner may report in the actual statement that are not considered by appraisers.
- In addition, the "reconstructed" statement shows what the property can expect to net based on market information.
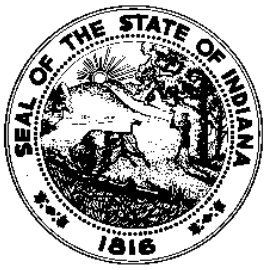
Income Approach

Potential Annual Gross Income (PGI)

Less Annual Vacancy & Collection Loss (V&C)

Plus Miscellaneous Income (Misc. I)

Equals Effective Gross Income (EGI)

Less Operating Expenses (EXP)

Less Reserve for Replacements (RR)

Equals Net Operating Income (NOI)

Income Approach

- **Potential Gross Income (PGI)** – total market rent that a property could annually generate if it were 100% occupied.

- This is developed by looking to see what the market (comparable properties) are collecting for rent for the same type of space as the subject. It may, or may not, be equal to the subject's current rent (contract rent).

Income Approach

	Efficiency	1 BR	2 BR	3 BR
Subject	$250	$400	$550	$650
Comp 1	$250	$450	$600	$700
Comp 2	$250	$450	$600	$725
Comp 3	$225	$450	$600	$725
Comp 4	$250	$450	$600	$725
Mkt. Rent	$250	$450	$600	$725

Income Approach

- We would then apply the market rent to the number of units in the subject property to get its potential gross income (PGI).

Income Approach

- Efficiency   10 apts. @ $250 = $ 2,500
- 1 BR   40 apts. @ $450 = $18,000
- 2 BR   40 apts. @ $600 = $24,000
- 3 BR   10 apts. @ $725 = $ 7,250
- Totals   100 apts. $51,750

- $51,750 x 12 months = $621,000 PGI

Income Approach

- Another way of determining the PGI is by multiplying the total net leasable area of the property by the market rent for similar types of properties.
- Example: The subject property has 10,000 sq. ft. of net leasable area. After examining market data, you have determined the annual market rent for similar properties to be $13 per sq. ft. What is the PGI for the subject property?
- 10,000 x $13 = $130,000

Income Approach

- **Vacancy and Collection Loss** – a loss from potential gross income (PGI) caused by vacant space and failure to collect rents.

- Most properties suffer some vacancy loss if for no other reason than tenant turnover. Therefore, in reconstructing the operating statement, we give an allowance for vacancy and for the inability to collect rents that are due.

Income Approach

- This is developed by looking to see what the market (comparable properties) are incurring as a vacancy and a collection loss rate. It may, or may not, be equal to the subject's current collection loss (contract rent).

Income Approach

- To calculate a vacancy rate, you divide the number of vacant units by the total number of units for each property, subject and comparables, to get a vacancy rate (percentage) for each property.
  - For example, if you have 6 vacant units in a 120 unit building, your vacancy rate is 5% (6 ÷ 120 x 100)

Income Approach

- Another way to calculate a vacancy rate is dividing the vacant net leasable area of a property by the total net leasable area of the property.
- Useful when units within a property are an unequal size. (e.g. large office complexes, strip malls, etc.)
- Example: An office complex with a total of twenty unequal units has 35,000 sq. ft. of net leasable area. Two units (each containing 3,000 sq. ft.) are currently vacant. What is the vacancy rate for the office complex?
- Unit Method: 2 vacant units ÷ 20 total units = 10%
- NLA Method: 6,000 sq. ft. ÷ 35,000 sq. ft. = 17.1%

Income Approach

- Determine a rate for each property and then determine which comparable is closest to the subject. The rate for that comparable is the indicated vacancy rate you will use in the reconstructed operating statement.

Income Approach

- The Collection Loss Rate works the same way.
- Divide the Uncollected Rents by the Rents Receivable. The percentage is the Collection Loss Rate for that property. Compare the subject property to the comparables and select the one that is the most similar to the subject.

Income Approach

- **Miscellaneous Income** – income received by the property from sources other than the primary rent. For example, rental of the clubhouse for parties, income from vending machines or forfeited rent deposits.
- Estimated by looking at the historical operating statements for the property.

Income Approach

- Effective Gross Income (EGI) – potential gross income, less vacancy and collection loss, plus miscellaneous income.
  PGI (Potential Gross Income) $621,000
  - V & C @ 6%   (37,260)
  + Misc. Income   -0-
  = EGI (Effective Gross Income) $583,740

Income Approach

- **Operating Expenses** – costs of operating the property.

- Expenses are divided into two categories:
  - **Allowable Expenses** – expenses that are ordinary and typical and are necessary to keep the property functional and rented competitively.

Income Approach

- **Improper Expenses** – expenses incurred in the ownership of income-producing property that are not used to calculate value in the income approach. These are not entered into the reconstructed operating statement.

Income Approach

- **<u>Allowable Expenses (EXP)</u>**
  - Management
  - Wages, Salaries and Benefits
  - Utilities
  - Materials & Supplies
  - Repairs and Maintenance
  - Insurance
  - Miscellaneous Expenses

Income Approach

- **Allowable Expenses (EXP)**
  - Property Taxes (NOTE: In appraising for property tax purposes, these are not expensed, but are taken care of as part of the capitalization rate)

Income Approach

- **<u>Improper Expenses</u>**
  - Depreciation
  - Debt Service
  - Income Taxes
  - Capital Improvements
  - Owner's Business Expenses
  - Property Taxes (NOTE: These are a proper expense, but in appraising for property tax purposes, they are accounted for in the capitalization rate)

Income Approach

- **Calculating Allowable Expenses**
- In calculating the proper expenses to put into the reconstructed operating statement for a property, you must compare the current expenses with past years' expenses, compare current expenses with those of comparable properties, and contact the owner/manager regarding expense items in question. Expenses, like other items in the income approach must be supported by market comparables.

Income Approach

- **Reserve for Replacements** – an operating expense for replacement of capital items such as roofs or HVAC equipment. These are expenses that do not occur every year, but do need periodic replacement. It is assumed that a prudent owner will take an amount from rent collections each year, deposit it in a reserve account, and pay for these types of expenses from the reserve and not out of current year's collections.

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Income Approach

- The reserves are actually allowable expenses that are pro-rated over the life of the capital item that has to be replaced periodically.

Income Approach

- They are calculated as follows:
  1. Estimate the economic life of the item.
  2. Estimate its replacement cost new (RCN)
  3. Calculate the percentage of reserve per year by dividing 100% by the economic life.
  4. Multiply the RCN by the % per year to get the amount of annual reserve.

Income Approach

- Example – Roof on an apartment bldg.
  1. Estimate the economic life – 20 years
  2. Estimate the RCN – $20,000
  3. Calculate the percentage of reserve per year by dividing 100% by the econ. Life. – 100% ÷ 20 = 5%
  4. Multiply the RCN by the % per year to get the amount of annual reserve. $20,000 x 5% = $1,000

Income Approach

- Another way of calculating a Reserve for Replacement is by dividing the total cost of the replacement by the life of the structure.
- Example: a new roof will cost $40,000 to replace and will last approximately 20 years.
- $40,000 ÷ 20 = $2,000 (this is the amount the taxpayer will need to save each year to pay for the new roof in 20 years).

Income Approach

- **Expense Ratio** – ratio of expenses to effective gross income; expenses plus reserve for replacement divided by effective gross income.
- An expense ratio is a simplified way of determining total expenses and reserves without having to account for each expense item separately.

Income Approach

- An expense ratio is calculated as follows:

(Expenses + Reserves) ÷ EGI = Expense Ratio

Income Approach

Reconstructed Operating Statement

PGI

-V&C

+ Misc. Income

= EGI

- Exp

- RR

= NOI

You are trying to determine the value of a small retail center containing 4,500 square feet of Net Leasable Area. There are three leasable spaces in the building, and at present two of the spaces are leased. You have determined the following information:

1.) Market rent for this type of space is $22 per square foot.

2.) The owner has $3,000 per year in miscellaneous income.

3.) The vacancy rate is 4% and the collection loss rate is 1%.

4.) Operating Expenses from the reconstructed operating statement are $30,500.

5.) The Reserve for Replacements is $5,000.

Determine the Net Operating Income (NOI) for the subject property.

Potential Gross Income (PGI)	
Vacancy and Collection Loss	
Miscellaneous Income	
Effective Gross Income (EGI)	
Operating Expenses	
Reserves for Replacements	
Net Operating Income (NOI)	

Income Approach
Class Problem # 1 Answer
Determination of Net Operating Income

Potential Gross Income	$99,000
Less: Vacancy and Collection Loss	($4,950)
Add: Miscellaneous Income	$3,000
Effective Gross Income	$97,050
Less: Operating Expenses	($30,500)
Less: Reserve For Replacements	($5,000)
Net Operating Income	$61,550

Net leasable area of 4,500 Square feet times $22/Square Feet	$99,000
Vacancy loss rate of 4% plus Collection loss rate of 1% times PGI	($4,950)
Add miscellaneous income (given)	$3,000
Effective Gross Income (EGI)	$97,050
Less expenses (given)	($30,500)
Less reserves for replacements (given)	($5,000)
Net Operating Income (NOI)	$61,550

Income Approach

- **Capitalization Rates** express the relationship between income and value.
- Proper selection of a capitalization rate is necessary in order to produce a valid value estimate.
- A small difference in the capitalization rate will result in estimates of value differing by thousands of dollars.

Income Approach

- Following are examples of different capitalization rates associated with the same yearly income.
- Assume NOI of $100,000. We will apply an 8%, 10%, and 12% Capitalization Rate to this figure to demonstrate the effect of the Capitalization Rate. (MV=NOI/Rate)
- $100,000/.08 = $1,250,000
- $100,000/.10 = $1,000,000
- $100,000/.12 = $ 833,333
- As you can see the lower the Cap Rate the higher the value.

Income Approach

- Capitalization Rate can be composed of various rate components. These components are:
  - **<u>Discount Rate</u>** – allows for return **<u>on</u>** the investment.
  - **<u>Recapture Rate</u>** – allows for return **<u>of</u>** the investment.
  - **<u>Effective Tax Rate</u>** – allows for payment of the property taxes on the investment.

Income Approach

- **<u>Discount Rate</u>** – percentage that allows for return <u>on</u> the investment.
- The discount rate reflects the compensation necessary to attract investors to give up liquidity, defer consumption, and assume the risks of investing. It is the rate of return on total property investment to meet investment requirements.

Income Approach

Discount Rate (Continued)

- Three methods to determine:
  - Summation Method (build-up method)
  - Band-of-Investment Method
  - Market Comparison Method

Income Approach

- **<u>Recapture Rate</u>** – percentage that allows for <u>return of</u> the investment.
- The recapture rate is the annual dollar requirement for returning to the investor a sum equal to the value of the improvements at the end of a given period of time. It is the annual offset against the depreciation on the improvements.

Income Approach

Recapture Rate (Continued)

- Two methods to determine:
  - Reciprocal of the remaining economic life method.
  - Market comparison method.

Income Approach

- **<u>Effective Tax Rate</u>** – percentage that allows for payment of the property taxes on the investment.
- The effective tax rate expresses the ratio between the property value and the current tax bill. Since we do not expense the property taxes in the reconstructed operating statement, they must be accounted for in the capitalization rate.

Income Approach

Effective Tax Rate (Continued)

- Two methods to determine:
  - EAT formula method
  - Market comparison method

Income Approach

- Once we have the three rate components, we can then develop a capitalization rate to use in the IRV formula.

- The capitalization rate we develop must match the income we are capitalizing. In other words, whatever the investor needs to take out of the income, we need to include in the cap rate.

Income Approach

- There are three types of capitalization rates:
  1. Land Cap Rate (R_L) – used when we are capitalizing land income.
  2. Improvement (Bldg.) Cap Rate (R_I) – used when we are capitalizing building/improvement income.
  3. Overall Capitalization Rate (R_O) or (OAR) – used when we are capitalizing the income to the total property.

Income Approach

- Land Cap Rate (R_L) – used when capitalizing land income.
- Developed by adding together the Discount Rate and the Effective Tax Rate.

  - If the Discount rate is 8% and the Effective Tax Rate is 1.2%, the Land Cap Rate would be 9.2% (8% + 1.2%).

Income Approach

- Improvement (Bldg.) Cap Rate (R_I) – used when capitalizing improvement (building) income.

- It is developed by adding together the Discount Rate, the Effective Tax Rate, and the Recapture Rate.

Income Approach

- Example:
  - If the Discount Rate is 8%, the Effective Tax Rate is 1.2% and the Recapture Rate is 2%, the Improvement Cap Rate is 11.2%.

$$(8\% + 1.2\% + 2\% = 11.2\%)$$

Income Approach

- **<u>Overall Capitalization Rate</u>** (R_O) or (OAR) – used when we are capitalizing the income to the total property.
- Developed by weighting the land cap rate and the improvement cap rate by the land-to-building ratio.

Income Approach

- Example:
  - Land-to-building ratio is 1:4 (20% land, 80% building) (The land to building ratio is based on the contributory value of Land and Building, respectively to the total value of a property. Market research must be done to establish this relationship. Sales of properties will be researched and analyzed as to what percent of the total value of the sale is attributable to each part of land and improvement. The resulting values then establish the land-to-building ratio.)
  - If the land cap rate is 8% and the building cap rate is 12%, the OAR is calculated as follows:
    - Land Cap Rate = 8% x 20% = 1.6%
    - Bldg. Cap Rate – 12% X 80% - 9.6 %
    - OAR is 1.6% + 9.6% or 11.2%

Income Approach

- A second method of developing an overall cap rate is to determine it directly from the market by analyzing comparable property using the IRV formula.
  - $I \div V = R$
  - NOI ÷ Sale Price = Overall Rate

Income Approach

- For example, we know that our NOI is $45,100 and our Sale Price was $400,000. Our OAR would be 11.275%.

  $45,100 ÷ $400,000 = 11.275%

Income Approach

- Once you have the appropriate capitalization rate, it is merely a matter of plugging it in to the IRV formula and capitalizing the NOI for the property into an indication of the property's value using the income approach.

Income Approach

- Remember the IRV formula:
  - I ÷ R = V
  - NOI ÷ Cap Rate = Market Value

  - If the NOI is $49,500 and the Cap Rate is 11%, the market value is $450,000. ($49,500 ÷11% = $450,000)

Income Approach

- Capitalization methods are different ways of mathematically combining income streams and capitalization rates to arrive at a conclusion of value by the income approach.
- They can be divided into two categories:
  - Direct Capitalization Methods
  - Yield Capitalization Methods (we will not be discussing these)

Income Approach

- **Direct Capitalization Methods**
- Direct capitalization methods use an estimate of one year's income and <u>directly</u> converts it into an indicated value.
  - Uses the IRV or VIF formulas
  - The direct methods are: Overall Capitalization Rates and Gross Income or Gross Rent Multipliers.

Income Approach

- We just discussed, and you just determined an overall cap rate, so we are going to spend the rest of the time talking about the Gross Income/Gross Rent Multipliers.

Income Approach

- **Gross Income/Gross Rent Multipliers**
- This is also a simple method of capitalization. It uses the VIF formula and converts one year's (or one month's) effective gross income (EGI) into value by multiplying it by a factor.
- The factor is called a **multiplier**, and can be either a Gross Income Multiplier (GIM) or a Gross Rent Multiplier (GRM).

Income Approach

- I x F = V
- EGI x GIM = Market Value

- If our EGI = $60,000 and our GIM = 7, the indicated value of our property would be $420,000.

Income Approach

- **Gross Income Multipliers (GIM)** are developed for most commercial properties such as office buildings, shopping centers, warehouses, and large apartment complexes.
- **Gross Rent Multipliers (GRM)** are developed for residential properties such as single-family, duplexes, triplexes, etc. (IC 6-1.1-4-39 (3)(c))

Income Approach

- **Gross Income Multipliers (GIM)** are developed from comparable properties' **annual** effective gross income and are applied to the subject property's **annual** effective gross income.

Income Approach

- **Gross Rent Multipliers (GRM)** are developed from comparable properties' **monthly** effective gross income and are applied to the subject property's **monthly** effective gross income.

Income Approach

Gross Income Multipliers (GIM) Formula:

Sale Price ÷ Annual EGI = GIM

Example:

Comp #1 $420,000 ÷ $70,000 = 6.0

Comp #2 $520,000 ÷ $88,100 = 5.9

Comp #3 $630,000 ÷ $103,300 = 6.1

Income Approach

- This tells us that investors are paying approximately six (6) times the annual effective gross rent for these properties.

Income Approach

Gross Income Multiplier Application:

I x F = V

Annual EGI x GIM = Market Value

Example:

Subject property's annual EGI is $90,000, and the GIM is 6.

The indicated market value would be $540,000 ($90,000 x 6 = $540,000)

Income Approach

Gross Rent Multiplier (GRM) Formula:

Sale Price ÷ Monthly EGI = GRM

Example:

Comp #1	$48,000 ÷ $450 = 106.7
Comp #2	$50,500 ÷ $470 = 107.4
Comp #3	$53,000 ÷ $495 = 107.1

Income Approach

- This tells us investors are paying approximately one hundred seven (107) times the monthly effective gross rent for these properties.

Income Approach

- Gross Rent Multiplier (GRM) application:

$$I \times F = V$$

Monthly EGI x GRM = Market Value

- Subject property's monthly EGI is $500 and the GRM is 107.
- The subject property's indicated market value is $53,500 ($500 x 107)

Income Approach

- Generally, when working with GIM's and GRM's you will select the one that is most like your subject property. That is why it is important to select the proper comparables. If, while working the following problems, you do not know which comparable is most like your subject property the median would normally be a good method to use to select the proper GIM or GRM.

The subject property is a single family dwelling which is rented for $475 per month. The market rent is also $475 per month. Develop a GRM from the following data and use it to calculate a possible indication of value.

Sales

	1	2	3	4	5
Sale Price	$60,000	$72,000	$65,000	$62,000	$68,000
Monthly Rent (EGI)	$425	$520	$460	$450	$490
GRM					

The subject property is a single family dwelling which is rented for $475 per month. The market rent is also $475 per month. Develop a GRM from the following data and use it to calculate a possible indication of value.

Sales

	1	2	3	4	5
Sale Price	$60,000	$72,000	$65,000	$62,000	$68,000
Monthly Rent (EGI)	$425	$520	$460	$450	$490
GRM	141.2	138.5	141.3	137.8	138.8

GRM = Sales Price divided by the Monthly Rent (EGI)

Median is 138.8

Possible indication of value: Market rent of $475 times 138.8 = $65,930 rounded to $65,900
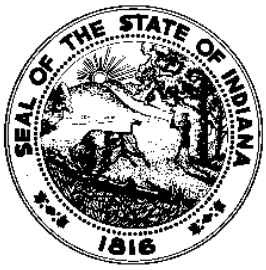
The subject property produces Gross Annual Effective Gross Income of $72,000. Analysis of rents and sales of comparable properties rendered the following. Based upon this information calculate a Gross Income Multiplier (GIM) and then calculate indication of value for subject property.

Sale	Sale Price	EGI	Gross Income Multiplier		Gross Income Multiplier Range
1	$675,000	$75,000			
2	$600,000	$68,000			
3	$720,000	$85,700			
4	$750,000	$87,500			
5	$650,000	$73,000			

Estimated value of subject property:

Value using Low range (Low range is the lowest of the GIMs)

Value using High range (High range is the highest of the GIMs)

Value using Median

The subject property produces Gross Annual Effective Gross Income of $72,000. Analysis of rents and sales of comparable properties rendered the following. Based upon this information calculate a Gross Income Multiplier (GIM) and then calculate indication of value for subject property.

Sale	Sale Price	EGI	Gross Income Multiplier	Gross Income Multiplier Range
1	$675,000	$75,000	9.0	8.4
2	$600,000	$68,000	8.8	8.6
3	$720,000	$85,700	8.4	8.8
4	$750,000	$87,500	8.6	8.9
5	$650,000	$73,000	8.9	9.0

GIM = Sale Price divided by the EGI

Possible indicated range of value:
Subject property EGI of $72,000 times low range =   8.4 $604,800
Subject property EGI of $72,000 times high range =   9.0 $648,000
Subject property EGI of $72,000 times median range =   8.8 $633,600

You are appraising an office building in the Belle River complex. The building is three stories high and contains 20,000 square feet on each floor. The net leasable area on each floor is 17,500 square feet. There are three offices on each floor, but the square footage per office varies with the client. The leases have been entered into at various times over the past four years. The current rent roll is as follows:

First Floor	Area	Total Rent Paid
Thomas and Associates	3,750	$ 69,375
Katz, Katz, and Doggz	8,250	$ 123,750
Kelley Engineering	5,500	$ 88,000
Second Floor		
Second Job Agency	4,000	$ 72,000
Paperman Publishing	9,200	$ 142,600
Vacant	4,300	$ -
Third Floor		
Silverman and Goldman	8,000	$ 128,000
Leland Entertainment	3,000	$ 51,000
Media Heaven Ad Agency	6,500	$ 110,500

In researching the market, you have found that recently negotiated office rent in the same type location is running $20.10 per square foot.

What is the Potential Gross Income for your subject property?

In researching the rents, we also found that our vacancy rate was identical to the market vacancy rate. What is the vacancy rate for the subject property?

The market collection loss for office space in this area is 1.2%. Using this rate develop a vacancy and collection loss rate for the subject building.

Using the above information, what is the Effective Gross Income of the subject?

Income Approach
Class Problem # 3 (A) Answer
Belle River Office Building - Determine PGI, EGI, and NOI

PGI
17,500 sq. ft. NLA on each floor; complex has 3 floors

17,500 x 3 = 52,500 sq. ft.

Market Rent is $20.10 per sq. ft.

$20.10 x 52,500 = $1,055,250

Vacancy Rate
There is one vacant office of 4,300 sq. ft.

4,300 ÷ 52,500 = 8.2%

Vacancy and Collection Loss Rate (V&C)
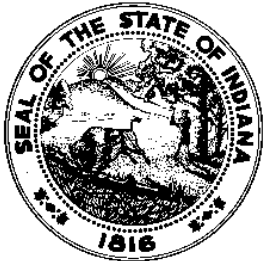Vacancy Rate is 8.2% and the Collection Loss Rate is 1.2%

8.2% + 1.2% = 9.4%

EGI
PGI = $1,055,250 and the V&C = 9.4%

No Miscellaneous Income is listed

PGI	$1,055,250
- V&C	-$99,194
+ Misc. Inc.	0
= EGI	$956,056

Income Approach
Class Problem # 3 (B)
Belle River Office Building - Determine PGI, EGI, and NOI

The property management company of Bell River Complex (from slide 139) has furnished you with this operating statement. Upon further analysis, you have determined that the operating statement is incorrect for ad valorem purposes. Reconstruct the operating statement using information from slide 139 (PGI, V&C, and EGI), remove any improper expenses listed below, and find the correct NOI for the property.

Belle River Office Building
Operating Statement as filed

Potential Gross Income	$ 785,225.00	
Less: Vacancy and Collection Loss 8.2%)	$ (64,388.00)	
Add: Miscellaneous Income		0
Effective Gross Income		$ 720,837.00
Less operating expenses:		
Management Fees (10% of EGI)	$ (72,084.00)	
Property Taxes	$ (28,457.00)	
Lawn Care	$ (2,300.00)	
Supplies/Maintenance	$ (7,248.00)	
Maintenance Salaries/Benefits	$ (28,340.00)	
Common Lighting	$ (1,345.00)	
Water and Sewer	$ (6,573.00)	
Electricity	$ (11,965.00)	
Gas	$ (15,996.00)	
Liability Insurance	$ (7,100.00)	
Debt Service	$ (173,900.00)	
Snow Removal	$ (1,100.00)	
Income taxes	$ (61,230.00)	
Donation to City Festival	$ (500.00)	
Christmas party for tenants	$ (1,345.00)	
Casualty Insurance (3 year policy)	$ (845.00)	
Membership in trade association	$ (1,500.00)	
Flower fund	$ (734.00)	
		$ (422,562.00)
Less Reserve for Replacements		$ (22,500.00)
Net Operating Income		$ 275,775.00

Income Approach
Class Problem # 3 (B) Answer
Belle River Office Building - Determine PGI, EGI, and NOI

First Floor	Area	Market Rent	PGI		
Thomas and Associates	3,750	$20.10	$75,375	VAC & COLL LOSS	9.4%
Katz, Katz and Doggz	8,250	$20.10	$165,825		$1,055,250
Kelley Engineering	5,500	$20.10	$110,550		$99,194.00
Second Floor	17,500				
Second Job Agency	4,000	$20.10	$80,400		
Paperman Publishing	9,200	$20.10	$184,920		
Vacant	4,300	$20.10	$86,430		
Third Floor	17,500				
Silverman & Goldman	8,000	$20.10	$160,800		
Leland Entertainment	3,000	$20.10	$60,300		
Media Heaven Advertising Agency	6,500	$20.10	$130,650		
	17,500		$1,055,250	PGI	

POTENTIAL GROSS INCOME	$1,055,250	PGI
LESS: VACANCY LOSS AND COLLECTION LOSS	($99,194)	
ADD: MISCELLANEOUS INCOME	$0	
EFFECTIVE GROSS INCOME	$956,056	EGI
LESS: OPERATING EXPENSES		
MANAGEMENT FEES (10% OF EGI)	($95,606)	
LAWN CARE	($2,300)	
SUPPLIES/MAINTENANCE	($7,248)	
MAINTENANCE SALARIES/BENEFITS	($28,340)	
COMMON LIGHTING	($1,345)	
WATER & SEWER	($6,573)	
ELECTRICITY	($11,965)	
GAS	($15,996)	
LIABILITY INSURANCE	($7,100)	
SNOW REMOVAL	($1,100)	
CASUALTY INSURANCE 3 YR POLICY--PRO RATE 845/3	($282)	
MEMBERSHIP IN TRADE ASSOCIATION	($1,500)	
RESERVE FOR REPLACEMENTS	($22,500)	
NET OPERATING INCOME	$754,201	NOI

Vacancy Rate		
4300/52500	8.2%	
Collection Rate Loss	1.2%	
Vacancy and Collection Rate Loss		9.4%

Potential Gross Income	$150,000
Vacancy and Collection Loss	10%
Operating Expense	$25,000
Christmas Gift	$2,500
Property Value	$800,000
Loan to value ratio	0.4

The above is given to you, develop the NOI and the Overall Capitalization Rate.
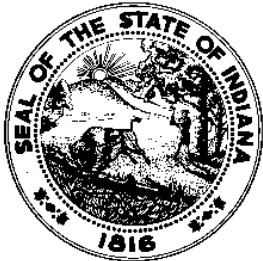
Net operating Income _____

Overall Cap Rate _____

PGI	$ 150,000
V & C Loss ($150,000*10%)	- $ 15,000
Misc Inc	$ 0
Effective Gross Income	$ 135,000
Operating Expense (Given)	- $ 25,000
Net operating Income	$ 110,000
Net operating Income	$ 110,000
Overall Cap Rate (Income/Value=Rate)	13.8%

145

40000 square feet

Of this, 8000 square feet is common area

Market Rent $20/square foot of net rentable area

Vacancy and Collection loss 6%

Operating Exp and Reserve for Replacement 18%

CAPITALIZATION RATE IS 10%

THE ABOVE IS GIVEN PER PROBLEM---DEVELOP PGI, EGI, & NOI AND THE VALUE OF THIS SUBJECT PROPERTY

Potential Gross Income   _____

Vacancy and Collection Loss   _____

Misc Income   _____

Effective Gross Income   _____

Operating Expenses & Reserves for Replacements   _____

Net Operating Income   _____

WHAT IS THE VALUE OF THIS PROPERTY?   _____

POTENTIAL GROSS INCOME	32,000	$20	$640,000
VACANCY & COLLECTION LOSS	$640,000	6%	-$38,400
MISC. INCOME	$0		$0
EFFECTIVE GROSS INCOME			$601,600
OPERATING EXP AND RESERVE FOR REPLACEMENT	$601,600	18%	-$108,288
NET OPERATING INCOME			$493,312

IF THE CAPITALIZATION RATE IS 10%

WHAT IS THE VALUE OF THIS PROPERTY?

THE NET OPERATING INCOME FROM ABOVE IS	$493,312
CAPITALIZATION RATE IS	10%
ESTIMATED VALUE OF PROPERTY	$4,933,100

Using the below information, calculate an expense ratio for each of the four properties.

SC	EGI	EXPENSES	RESERVES		
Rieverton	$469,775	$135,330	$15,000		
Eagle Ridge	$392,440	$117,500	$12,000		
Chatham	$518,760	$148,000	$18,000		
Hyde Park	$318,780	$88,020	$10,800		

What is the Median expense ratio?

Given the above information develop an expense ratio to use on our subject property.

SC	EGI	EXPENSES	RESERVES	Total Expense	Exp Ratio
Rieverton	$469,775	$135,330	$15,000	$150,330	32.0%
Eagle Ridge	$392,440	$117,500	$12,000	$129,500	33.0%
Chatham	$518,760	$148,000	$18,000	$166,000	32.0%
Hyde Park	$318,780	$88,020	$10,800	$98,820	31.0%

The Median Expense Ratio is   32.0%
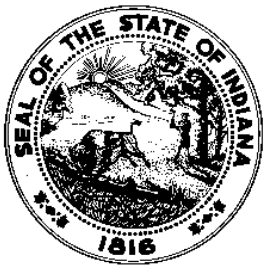
149

SALES

	1	2	3	4	5
Sale Price	$45,000	$56,000	$48,000	$53,500	$58,000
Monthly Rent	$425	$520	$450	$490	$525
GRM					

MONTHLY EGI OF SUBJECT PROPERTY $475

MEDIAN

USING THE MEDIAN GRM PROVIDE AN INDICATION OF VALUE TO THE NEAREST $100
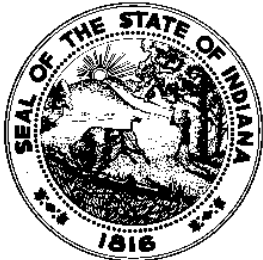
SALES						GRM Rank
	1	2	3	4	5	105.9
Sale Price	$45,000	$56,000	$48,000	$53,500	$58,000	106.7
Monthly Rent	$425	$520	$450	$490	$525	107.7
GRM	105.9	107.7	106.7	109.2	110.5	109.2
						110.5

MONTHLY EGI OF SUBJECT PROPERTY $475

MEDIAN   107.7

USING THE MEDIAN GRM PROVIDE AN INDICATION OF VALUE TO THE NEAREST $100

Indication of value $475   Times   107.7 $51,200

(ROUND TO THE NEAREST $100)

Sale	Sale Price	Effective Gross Income	Gross Income Multiplier
A	$650,000	$75,000	
B	$590,000	$68,000	
C	$695,000	$85,700	
D	$750,000	$87,500	
E	$620,000	$73,000	

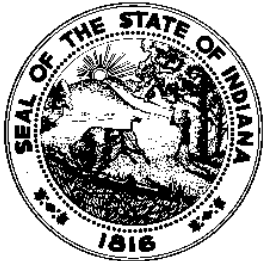Ranges from _____   to   _____

GIVEN YEARLY EGI	RANGE	VALUES
$72,000		
$72,000		

Median   [   ]

PROVIDE THE HIGH AND LOW RANGE VALUES BASED ON THE GIM

Sale	Sale Price	Effective Gross Income	Gross Income Multiplier
A	$650,000	$75,000	8.7
B	$590,000	$68,000	8.7
C	$695,000	$85,700	8.1
D	$750,000	$87,500	8.6
E	$620,000	$73,000	8.5

Ranges from 8.1 to 8.7

$72,000	LOW	8.1	$583,200
$72,000	HIGH	8.7	$626,400

Median		8.6	$619,200

ROUNDED TO NEAREST $100

Contact Us

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